

Title: Book Fair Fascination

Brief Overview:

Students will be enlisted to provide information for the teacher to purchase books for the classroom at the annual BOOKFAIR. Students will collect and analyze data to find the most popular books for their class library.

Links to NCTM 2000 Standards:

- **Standard 1: Number and Operation**
Mathematics instructional programs should foster the development of number and operation sense so that all students understand numbers, ways of representing numbers, relationships among numbers, and number systems.
- **Standard 2: Patterns, Functions, and Algebra**
Mathematics instructional programs should include attention to patterns; functions, symbols, and models so that all students understand various types of patterns and functional relationships.
- **Standard 4: Measurement**
Mathematics instructional programs should include attention to measurement so that all students understand attributes, units, and systems of measurement, as it pertains to money.
- **Standard 5: Data Analysis, Statistics, and Probability**
Mathematics instructional programs should include attention to data analysis, statistics, and probability so that all students pose questions and collect, organize, and represent data to answer those questions; interpret data using methods of exploratory data analysis; and develop and evaluate inferences, predictions, and arguments that are based on data.
- **Standard 6: Problem Solving**
Mathematics instructional programs should focus on solving problems as part of understanding mathematics so that all students develop a disposition to generalize in situations within and outside mathematics; and monitor and reflect on their mathematical thinking in solving problems.
- **Standard 7: Reasoning and Proof**
Mathematics instructional programs should focus on learning to reason and construct proofs as part of understanding mathematics so that all students develop and evaluate mathematical arguments and proofs.

- **Standard 8: Communication**

Mathematics instructional programs should use communication to foster an understanding of mathematics so that all students organize and consolidate their mathematical thinking to communicate with others; express mathematical ideas coherently and clearly to peers, teachers, and others; and use the language of mathematics as a precise means of mathematical expression.

- **Standard 9: Connections**

Mathematics instructional programs should emphasize connections to foster an understanding of mathematics so that all students understand how mathematical ideas build on one another to produce a coherent whole; and recognize, use, and learn about mathematics in contexts outside of mathematics.

- **Standard 10: Representation**

Mathematics instructional programs should emphasize mathematical representations to foster an understanding of mathematics so that all students create and use representations to organize, record, and communicate mathematical ideas.

Grade/Level:

Grades 3-5

Duration/Length:

2 to 3 (45 minute) class periods for Grades 4-5
3 to 4 (45 minute) class periods for Grade 3

Prerequisite Knowledge:

Students should have working knowledge of the following skills:

- Classification
- Bar graph construction
- Creation of webs

Student Outcomes:

Students will:

- collect, organize, interpret, analyze, and display data.
- work cooperatively in groups.
- write a persuasive letter.
- classify literature into genres.

Materials/Resources/Printed Materials:

- Unifix Cubes (linking cubes)
- Paper bags
- Butcher paper
- Scoring rubric
- Student Resource Sheets (SRS# 1-3)
- Teacher Resource Sheets (TRS# 1-3)
- Book Fair inventory
- Overhead projector
- Markers

Development/Procedures:

Activity 1:

- Introduce the activity to the students. *The Book Fair is coming to school. Our class has been given one hundred dollars to spend at the Book Fair for our class library. We would like to purchase books that will be of interest to the students. In order to do this, we are going to find the most popular genres (book types) and purchase books from these genres.*
- Review collaborative working skills from Teacher Resource Sheet (TRS) #1.
- Divide students into groups of 3-4. Distribute Student Resource Sheet (SRS) #1 to each group. Have the groups determine who is going to be the Facilitator, Recorder, and the Reporter. (This may be left up to the students to determine, or the teacher may designate these roles.) Directions for this activity should include a review of how the small group should construct a web. On the student resource sheet students will be identifying book types (genres). A brief review/list of genres is included on TRS# 1. Allow time for students to complete their webs in groups.
- Have the Reporter from each group share their group's results from the preceding activity. From these results, create a class web on the overhead. These are the genre types that will be used in determining which books to purchase.
- Have the students brainstorm a list of books that they have read or that they are interested in reading. Create a class list of books on the chalkboard (or overhead).
- Distribute Student Resource Sheet SRS #2. Have the students work individually to categorize and classify the books into genres/book types. This will help the students to determine which genres are of interest to them.

Activity 2:

- Following a review of the previous day's activities, pass out Unifix Cubes to the students. Using Student Resource Sheet SRS #3, the students will need to assign a color code for each genre, and then pick the color of the genre that is of most interest to them. Label six brown bags with the book types. Each student will place the color of the cube that represents their choice in the corresponding paper bag in the front of the room.
- Using the colors in each labeled bag, the teacher will facilitate the creation of a class frequency table showing the popular book types (genres). For example, if one bag labeled, *fiction*, receives six red cubes and the bag labeled *fantasy* receives one green, the chart should reflect the count
- Review bar graph construction with the class.
- Divide the class into groups of 4-5. Have the groups construct bar graphs with their Unifix Cubes that are in their bags to represent how many votes each genre received. The Frequency Table should be used for this. **Note: If there aren't enough Unifix Cubes, this may be done as a whole class activity.**
- Pass out Student Resource Sheet SRS #3. Have the students individually create a bar graph using the group/class 3-D bar graph as a guide.
- Allow time for the students to individually answer the questions at the bottom of Student Resource Sheet SRS #3.
- Discuss with the class the results of the bar graph and responses to the questions.

Activity 3:

- Review results from the previous activity.
- Explain to the students that they will be writing a persuasive letter to the teacher (or other appropriate personnel), to make a case for which books should be purchased and why. Evidence from the data collected should be used in the letter.
- Attend a Book Fair or prepare an order from a Book Club.

Performance Assessment:

Students will be assessed on construction of bar graphs, appropriate responses to questions, and the persuasive letter. Teacher Resource Sheet TRS #2 contains a scoring guide for the bar graph construction. Teacher Resource Sheet TRS #3 contains a rubric to be used in assessing the persuasive letter.

Extension/Follow Up:

For more able students, exact ratios, fractions, and percentages should be found to represent the results of the class vote on popular book types (genres). These ratios should be used to find a proportionally accurate dollar amount to spend on each genre, using one hundred dollars as the total amount to spend.

Authors:

Edward E. Rossmore
Our Lady of Lourdes Catholic School
Richmond, VA
(Catholic Diocese of Richmond)

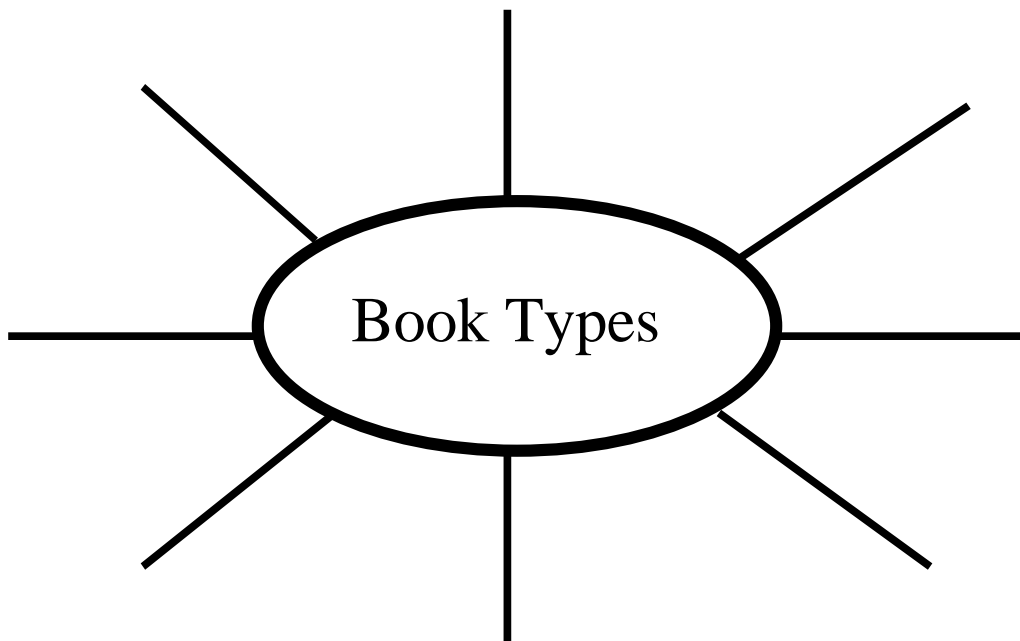
Mark Peyton
Francis T Evans Elementary
Prince George's County, MD

Name _____

Date _____

Book Fair Fascination

Directions: Working with your group, use the web below to identify the different type of books that can be read by your group.



Name _____

Date _____

Is It Your Type?

Directions: Classify the books on the board by their appropriate genre.

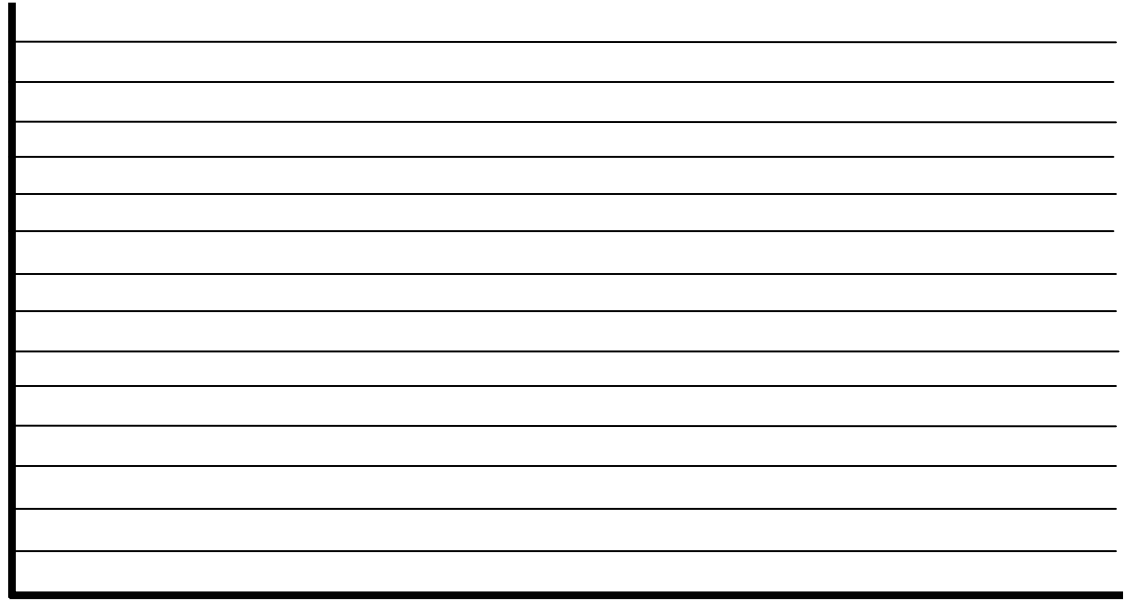
Book Types	1	2	3	4	5	6	Remarks
B O O K S							



Name _____

Date _____

How Our Books Stack Up



Color: () () () () () ()

Directions: You have one hundred dollars to spend at the Book Fair for our class.
Answer the following questions, using the data from the above bar graph.

1. Which genre is the most popular? _____
2. Which genre is the least popular? _____
3. Which genre would you spend the most money on and why? _____
4. How much money would you spend on this genre? _____
5. How would you spend the rest of your money? (Write your response on the back of this sheet.)



Collaborative Working Skills

- Designate group roles-
 - Facilitator -Recorder
 - Reporter -Materials Handler (if applicable)
- Everyone listens to each other.
- Share materials.
- One person speaks at a time.
- Speak in a low voice.
- Follow directions carefully.
- **No arguing.**

Sample Genres

- Fiction
- Humor
- Science Fiction
- Historical Fiction
- Non-Fiction
- Biographies
- Mystery
- Adventure
- Poetry

Bar Graph Grading Criteria

1 point ----- Title

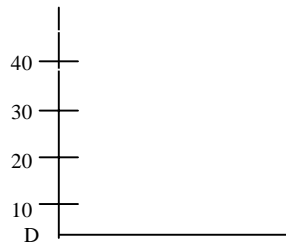
1 point ----- X axis labeled

1 point ----- Y axis labeled

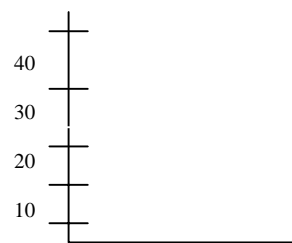
1 point ----- Numbers written on Y axis lines and not in the spaces.

Example-

RIGHT



WRONG



1 point ----- Bars show accurate number of votes received for each book type.

1 point ----- For questions #1 & 2 for correct interpretation of data.

2 points ----- For questions #3 – 4 (1 point per question) if an appropriate response is given.

2 points ----- Reflects an appropriate response using the data.

10 points ----- Total

Persuasive Letter Rubric

- 4 points Letter is persuasive in its use of information gained from the data collected; demonstrates a clear understanding of the results of the bar graph; and applies knowledge gained from data in determining a dollar amount for each genre to receive.
- 3 points Letter may not be very persuasive, but demonstrates a clear understanding of the results of the bar graph; and applies knowledge gained from the data to determining a dollar amount for each genre to receive.
- 2 points Letter is not very persuasive and is not very clear in its application of knowledge gained from the data to determine a dollar amount for each genre to receive, but demonstrates an understanding of the results of the bar graph.
- 1 point Letter is not persuasive; it may or may not have any application of knowledge gained from the data to determine a dollar amount for each genre to receive; and does not demonstrate an understanding of the results of the bar graph very clearly.